

Valefod LM2596

Valefod LM2596 DC-DC Buck Converter Module

User Manual

1. INTRODUCTION

This manual provides detailed instructions for the Valefod LM2596 DC-DC Buck Converter module. This high-efficiency voltage regulator is designed for various electronic projects requiring a stable, adjustable DC output voltage from a higher DC input voltage. Please read this manual thoroughly before use to ensure proper operation and safety.

2. SAFETY INFORMATION

Always observe the following safety precautions:

- Ensure input and output voltages are within the specified ranges.
- Do not exceed the maximum output current of 3 Amperes.
- Incorrect wiring can damage the module and connected devices. Always double-check connections before applying power.
- Avoid short circuits on the output terminals.
- Handle the module with care to prevent electrostatic discharge (ESD) damage.
- Keep the module away from moisture and extreme temperatures.

3. PRODUCT OVERVIEW

The Valefod LM2596 DC-DC Buck Converter is a step-down module featuring high accuracy and robust construction. It includes a 36u thick circuit board, high-quality inductors, an LED output indicator, and solid-state capacitors for effective high-frequency noise filtering.

3.1. Package Contents

- 10 x Valefod LM2596 DC-DC Buck Converter Modules

3.2. Module Components



Figure 1: Top view of the Valefod LM2596 DC-DC Buck Converter module, showing the input/output terminals, potentiometer, inductor, and capacitors.

The module features input terminals (IN+ and IN-), output terminals (OUT+ and OUT-), a blue potentiometer for voltage adjustment, an inductor, and capacitors for stable operation.

Sign of Current Flow



Figure 2: Bottom view of the LM2596 DC-DC module, indicating the current flow direction and model number.

The bottom of the module clearly shows the LM2596 DC-DC designation and an arrow indicating the direction of current flow from input to output.

4. SPECIFICATIONS

Feature	Value
Brand	Valefod
Model	LM2596
Input Voltage	DC 3V - 40V (Input must be > Output by 1.5V)
Output Voltage	DC 1.5V - 35V (Continuously Adjustable)
Max Output Current	3 Amperes
Module Dimensions	45 mm × 23 mm × 14 mm
Weight	14 grams (per module)
Power Source	Corded Electric
UPC	793118392135

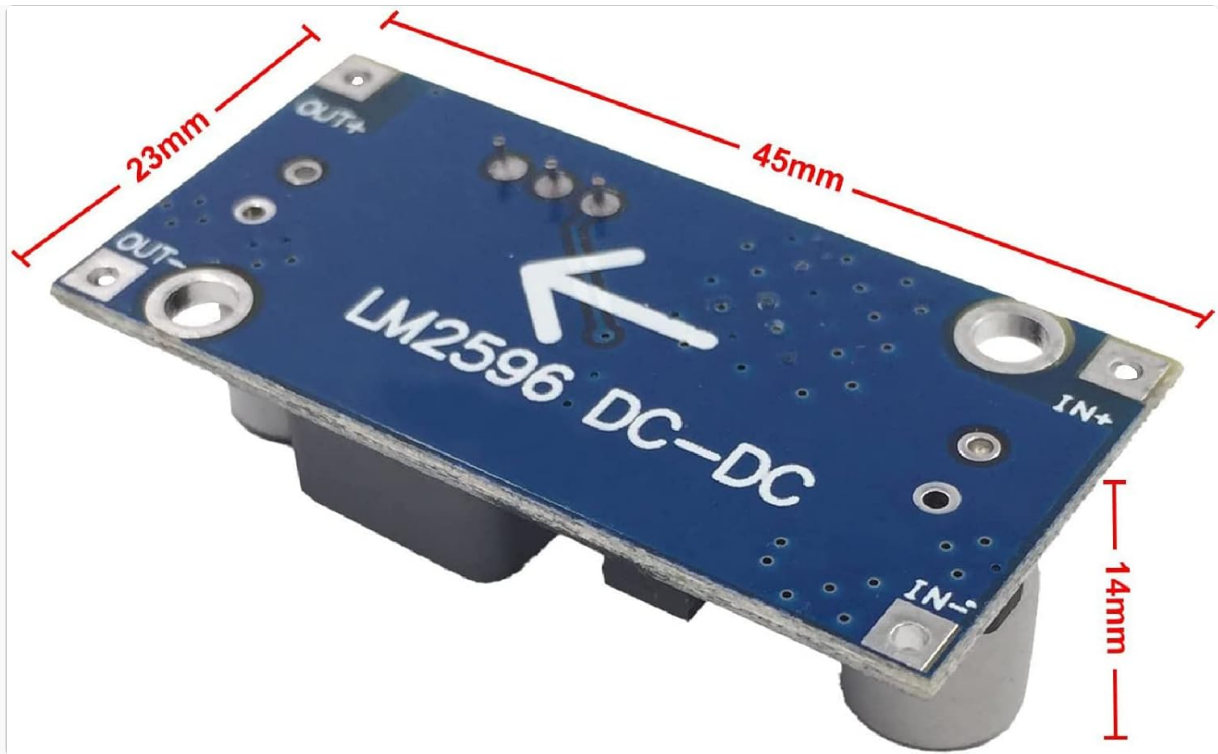


Figure 3: Dimensions of the LM2596 DC-DC Buck Converter module (45mm x 23mm x 14mm).

5. SETUP AND INSTALLATION

Follow these steps to set up your Valefod LM2596 DC-DC Buck Converter module:

1. **Identify Terminals:** Locate the input terminals (IN+ and IN-) and output terminals (OUT+ and OUT-) on the module.
2. **Connect Input Power:** Connect your DC power source to the input terminals. Ensure the positive (+) terminal of your power source connects to IN+ and the negative (-) terminal to IN-. The input voltage must be between 3V and 40V.
3. **Connect Load:** Connect your load (the device requiring power) to the output terminals. Ensure the positive (+) terminal of your load connects to OUT+ and the negative (-) terminal to OUT-.
4. **Initial Voltage Check:** Before connecting a sensitive load, it is highly recommended to connect a multimeter to the output terminals (OUT+ and OUT-) to monitor the output voltage.

6. OPERATING INSTRUCTIONS

The output voltage of the LM2596 module is continuously adjustable. Use the blue potentiometer to set the desired output voltage.

1. **Apply Input Power:** Once the input power source is connected, apply power. The LED indicator (if present) should light up.
2. **Adjust Output Voltage:** Use a small screwdriver to turn the screw on the blue potentiometer.
 - Turn the screw **clockwise** to **increase** the output voltage.
 - Turn the screw **counter-clockwise** to **decrease** the output voltage.
3. **Monitor Voltage:** Continuously monitor the output voltage with a multimeter while adjusting. The factory default voltage may be high, requiring several turns (approximately 7-15 turns) counter-clockwise before the voltage begins to drop significantly. Each full turn typically adjusts the voltage by approximately +/- 1V.

4. **Connect Load (if not already):** Once the desired output voltage is set, you can connect your load.

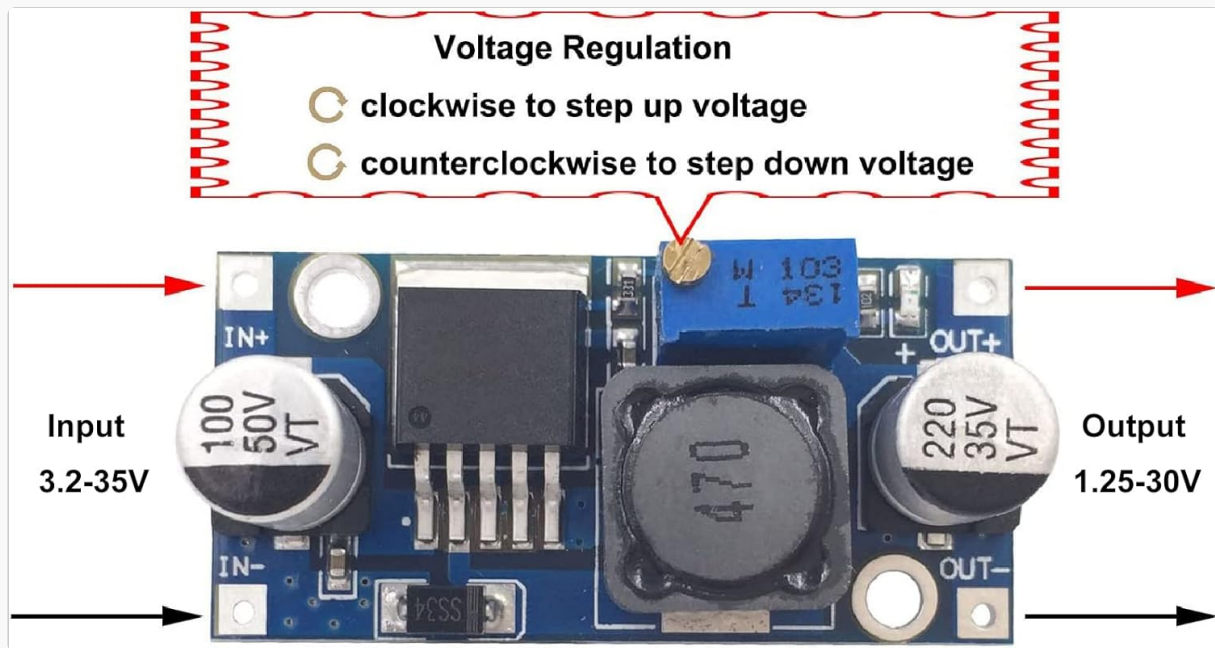


Figure 4: Diagram illustrating voltage regulation: clockwise to increase voltage, counter-clockwise to decrease voltage. Input range 3.2-35V, Output range 1.25-30V.

Important Note:

- The input voltage must always be at least 1.5V higher than the desired output voltage for proper buck (step-down) operation. This module does not have boost (step-up) capability.
- If you are unable to adjust the voltage, turn the potentiometer screw counter-clockwise for many turns (up to 15-20 turns) until you see the voltage change. The default setting might be near the maximum output.

7. MAINTENANCE

The Valefod LM2596 DC-DC Buck Converter module requires minimal maintenance:

- Keep the module clean and free from dust and debris.
- Ensure adequate ventilation, especially when operating at higher currents, to prevent overheating.
- Regularly inspect connections for looseness or corrosion.

8. TROUBLESHOOTING

If you encounter issues with your module, refer to the following troubleshooting tips:

Problem	Possible Cause	Solution
No output voltage / LED off	No input power, incorrect wiring, or faulty module.	Check input power supply. Verify input wiring (IN+ to positive, IN- to negative). Test with a known working power source.

Problem	Possible Cause	Solution
Output voltage cannot be adjusted	Potentiometer at its limit, or input voltage too low.	Turn the potentiometer screw many turns counter-clockwise (up to 15-20 turns) to ensure it's not at the maximum setting. Ensure input voltage is at least 1.5V higher than the desired output.
Output voltage is unstable	Input power fluctuation, excessive load, or faulty components.	Use a stable input power source. Reduce the load to stay within the 3A limit. Inspect for damaged components.
Module gets hot	High current draw, insufficient heat dissipation, or large voltage difference between input and output.	Ensure the load current does not exceed 3A. Provide adequate ventilation. Consider adding a heatsink if operating at high power for extended periods.

9. WARRANTY AND SUPPORT

For warranty information or technical support, please refer to the seller or manufacturer's official website. Keep your purchase receipt for any warranty claims.